

IFW



**PATENT**  
Attorney Docket No. 47380

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: PANIGRAHY ET AL.

Application No. 10/801,907


Group Art Unit: 2161

Confirmation No. 3071

Examiner: SAFET METJAHIC

Filed: March 15, 2004

For: IDENTIFICATION OF A LONGEST  
MATCHING PREFIX BASED ON A SEARCH  
OF INTERVALS CORRESPONDING TO THE  
PREFIXES

<p><b>CERTIFICATE OF MAILING OR TRANSMISSION</b></p> <p>I hereby certify that this paper is being deposited with the United States Postal Service on the date shown with sufficient postage as first class mail in an envelope addressed to: Commissioner For Patents, PO Box 1450, Alexandria VA 22313-1450, or being facsimile transmitted to the USPTO, 571-273-8300, on January 21, 2006.</p> <p> Kirk D. Williams, Esq.</p> <p>1/21/2006</p>
---

**INFORMATION DISCLOSURE STATEMENT - A**

Commissioner for Patents  
Alexandria, VA 22313-1450

Pursuant to 37 C.F.R. §§ 1.97 and 1.98, the references listed on the enclosed Form PTO-1449 are submitted for consideration by the Examiner in the examination of the above-identified patent application. The full consideration of the references in their entirety by the Examiner is respectfully requested and encouraged. Also, it is respectfully requested that the references be entered into the record of the present application and that the Examiner place his or her initials in the appropriate area on the enclosed Form PTO-1449, thereby indicating the Examiner's consideration of each of the references.

A bona fide attempt is made to comply with §§ 1.97-98. The filing of this information disclosure statement should not be construed as a representation that a search has been made, nor is it to be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in § 1.56(b). Additionally, the submission of this IDS is for the purpose of providing a complete record and is not a concession that the references are prior art to the invention claimed in the patent application. The right is expressly reserved to establish an invention date earlier than the above-identified filing date in order to remove any reference submitted herewith as prior art should it be deemed appropriate to do so. Furthermore, the submission of the references is not to be taken as a concession that any reference represents art that is relevant or analogous to the claimed invention. Accordingly, the right to argue that any reference is not properly within the scope of prior art relevant to an examination of the claims in the above-identified application is also expressly reserved.

**The Information Disclosure Statement is being filed:**

- ☒ Under § 1.97(b): (1) within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d); (2) within three months of the date of entry of the national stage as set forth in § 1.491 in an international application; (3) before the mailing of a first Office action on the merits; or (4) before the mailing of a first Office action after the filing of a request for continued examination under § 1.114.
- ☐ Under § 1.97(c): after (1), (2), or (3) above (i.e., after paragraph (b)) and before the mailing date of any of a final action under § 1.113, a notice of allowance under § 1.311, or an action that otherwise closes prosecution in the application, and is accompanied by:
- ☐ the statement specified in 37 C.F.R. § 1.97(e):
- ☐ Each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or
- ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.
- ☐ the fee set forth in 37 C.F.R. § 1.17(p) (see "Fees" below).
- ☐ Under § 1.97(d): after the period specified in § 1.97(c) and before payment of the issue fee, and is accompanied by:
- ☐ the statement specified in 37 C.F.R. § 1.97(e):
- ☐ Each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or
- ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of the information disclosure statement.
- ☐ the fee set forth in 37 C.F.R. § 1.17(p) (see "Fees" below).

In re PANIGRAHY ET AL.  
Application No. 10/801,907

### Copies Of The References

☒ Enclosed herewith are copies of the references listed on the enclosed Form PTO-1449. A concise explanation of the relevance, as it is presently understood by the individual designated in § 1.56(c) most knowledgeable about the content of the information, of each patent, publication, or other information listed that is not in the English language is included either separate from applicant's specification or incorporated therein. Furthermore, a copy of the translation of a non-English language reference is included herewith if a written English-language translation of a non-English-language document, or portion thereof, is within the possession, custody, or control of, or is readily available to any individual designated in § 1.56(c).

☐ A copy of a foreign search report is enclosed herewith.

☒ Copies of one or more cited pending US Applications are not provided as the application(s) are in the Image File Wrapper (IFW) system. As such, copies are not required per *Waiver of the Copy Requirement in 37 CFR 1.98 for Cited Pending US Patent Application*, 1287 Off. Gaz. Pt. Office 163 (October 19, 2004).

☐ Per 37 C.F.R. § 1.98(d), copies of the references listed on the enclosed Form PTO-1449 are not provided as they were previously submitted to, or cited by, the Office in an earlier application, and (1) the earlier application is properly identified in the information disclosure statement and is relied on for an earlier effective filing date under 35 U.S.C. 120; and (2) the information disclosure statement submitted in the earlier application complies with paragraphs (a) through (c) of this 37 C.F.R. § 198. The details of the parent application(s) relied upon for an earlier filing date under 35 U.S.C. § 120 in which copies of the references were previously furnished are set out below:

U.S. APPLICATIONS		Status ( <i>check one</i> )		
U.S. APPLICATIONS	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
1.				
2.				
3.				

In re PANIGRAHY ET AL.  
Application No. 10/801,907

**Fees**

- ☒ **No fee is owed by the applicant(s).**
- ☐ The IDS Fee of \$180.00 was already paid today with the submission of an electronic Information Disclosure Statement (eIDS) Filed today with ePAVE, so NO additional fee is believed due. A copy of the eIDS fee transmittal is included herewith.
- ☐ The IDS Fee of \$180.00 is due. (Fee code 126.)
- ☐ Please charge my credit card for the fees due (form PTO-2038 included herewith).
- ☐ Charge Deposit Account No. 501430 in the amount of \$180.


**Authorization To Charge Additional Fees and Credit any Overpayment**

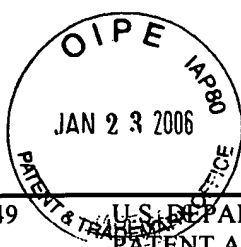
- ☒ If any additional fees are owed in connection with this communication, please charge Deposit Account No. 501430.
- ☒ Credit Account No. 501430 for any overpayment in connection with this communication.

Date: January 21, 2006

Respectfully submitted,

The Law Office of Kirk D. Williams

By  1/21/2006  
Kirk D. Williams, Esq., Reg. 42,229  
Customer Number 26327  
1234 S. OGDEN ST  
DENVER, CO 80210-1713  
303-282-0151  
303-778-0748 (facsimile)



<b>FORM PTO-1449 MODIFIED</b>		<b>U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE</b>		<b>Application Number</b>	<b>10/801,907</b>
				<b>Filing Date</b>	<b>March 15, 2004</b>
				<b>First Named Inventor</b>	<b>PANIGRAHY, RINA</b>
				<b>Group Art Unit</b>	<b>2161</b>
				<b>Examiner Name</b>	<b>METJAHIC, SAFET</b>
<b>Sheet</b>	<b>1</b>	<b>of</b>	<b>3</b>	<b>Attorney Docket No.</b>	<b>47380</b>

PENDING U.S. PATENT APPLICATIONS				
EXAMINER'S INITIALS	Cite No.	Application Number	Filing Date (MM-DD-YYYY)	Name of Applicant
	AA	10/165,590	06-08-2002	Panigrahy et al.

EXAMINER'S INITIALS	Cite No.	OTHER DOCUMENTS
	AB	LAMPSON ET AL., "IP Lookups Using Multiway and Multicolumn Search," IEEE Transactions on Networking, Vol. 7, No. 3, June 1999, pp. 324-334.
	AC	SRINIVASAN ET AL., "Fast Address Lookups Using Controlled Prefix Expansion," ACM Transaction on Computer Systems, Vol. 17, Issue 1, pp. 1-40, February 1999.
	AD	DOERING ET AL., Routing on longest-matching prefixes," IEEE/ACM Transactions on Networking, Vol. 4, No. 1, pp. 86-97, Feb. 1996.
	AE	UGA ET AL., "A Fast And Compact Longest Match Prefix Look-Up Method Using Pointer Cache For Very Long Network Address," Computer Communications and Networks, Eighth International Conference, pp. 595-602, 1999.

<b>Examiner Signature</b>		<b>Date Considered</b>	
---------------------------	--	------------------------	--

FORM PTO-1449 MODIFIED		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Application Number	10/801,907
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Filing Date	March 15, 2004
				First Named Inventor	PANIGRAHY, RINA
				Group Art Unit	2161
				Examiner Name	METJAHIC, SAFET
Sheet	2	of	3	Attorney Docket No.	47380

EXAMINER'S INITIALS	Cite No.	OTHER DOCUMENTS
	BA	DONALD R. MORRISON, "PATRICIA - Practical Algorithm to Retrieve Information Coded in Alphanumeric," Journal of the ACM, Vol. 15, No. 4, October 1968, pp. 514-534.
	BB	WALDVOGEL ET AL., "Scalable High Speed IP Routing Lookups," Proc. SIGCOMM '97, ACM, 1997, pp. 25-36.
	BC	LAMPSON ET AL., "IP Lookups Using Multiway and Multicolumn Search," Proc. Infocom 98, March 1998, 24 pages.
	BD	V. SRINIVASAN and GEORGE VARGHESE, "Faster IP Lookups using Controlled Prefix Expansion," ACM SIGMETRICS Performance Evaluation Review, Vol. 26 No.1, June 1998, p.1-10.
	BE	STEFAN NILSSON and GUNNAR KARLSSON, "Fast Address Look-up for Internet Routers," Proceedings of IEEE Broadband Communications, April 1998, 12 pages.
	BF	WILLIAM N. EATHERTON, HARDWARE-BASED INTERNET PROTOCOL PREFIX LOOKUPS, Master's thesis, Sever Institute, Washington University, St. Louis, MO, May 1999, 109 pages.
	BG	LOCKWOOD ET AL., "Field Programmable Port Extender (FPX) for Distributed Routing and Queuing," Proceedings of the ACM/SIGDA international symposium on Field programmable gate arrays, February 2000, pp. 137-144.
	BH	RUIZ-SANCHEZ ET AL., "Survey and Taxonomy of IP Address Lookup Algorithms," IEEE Network Magazine, Vol. 15, No. 2, March/April 2001, pp. 8-23.
	BI	PANKAJ GUPTA and NICK MCKEWON, "Algorithms for Packet Classification," IEEE Network Magazine, Vol. 15, No. 2, March/April 2001, pp. 24-32.
	BJ	IYER ET AL., "ClassiPI: An Architecture for Fast and Flexible Packet Classification," IEEE Network Magazine, Vol. 15, No. 2, March/April 2001, pp. 33-41.
	BK	WALDVOGEL ET AL., "Scalable High Speed Prefix Matching," ACM Transactions on Computer Systems, Vol. 19, No. 4, November 2001, pp. 440-482.

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

FORM PTO-1449 MODIFIED		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Application Number	10/801,907
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Filing Date	March 15, 2004
				First Named Inventor	PANIGRAHY, RINA
				Group Art Unit	2161
				Examiner Name	METJAHIC, SAFET
Sheet	3	of	3	Attorney Docket No.	47380

EXAMINER'S INITIALS	Cite No.	OTHER DOCUMENTS
	CA	DEVAVRAT SHAH AND PANKAJ GUPTA, "Fast Incremental Updates on Ternary-CAMs for Routing Lookups and Packet Classification," Proc. Hot Interconnects VIII, August 2000, Stanford. IEEE Micro, vol. 21, no. 1, January/February 2001, 9 pages.
	CB	Waldvogel et al., "Scalable Best Matching Prefix Lookups," PODC 98, ACM 1998.
	CC	RADIA PERLMAN, INTERCONNECTIONS: BRIDGES, ROUTERS, SWITCHES, AND INTERNETWORKING PROTOCOLS, Second Edition, Addison-Wesley, 2000, pp. 347-365.
	CD	PANKAJ GUPTA AND NICK MCKEOWN, "Algorithms for Packet Classification," IEEE Network Special Issue, March/April 2001, vol. 15, no. 2, pp 24-32 (reprint 29 pages).
	CE	Srinivasan et al., "Packet Classification Using Tuple Space Search," ACM Computer Communication Review, 1999. ACM SIGCOMM'99, Sept. 1999 (12 pages).
	CF	Srinivasan et al., "Fast and Scalable Layer Four Switching," ACM Computer Communication Review, 28(4):191-202, 1998. ACM SIGCOMM'98, Sept. 1998 (12 pages).
	CG	STEFAN NILSSON AND GUNNAR KARLSSON, "IP-Address Lookup Using LC-Tries," IEEE Journal on Selected Areas in Communications, June 1999 (12 pages).

Examiner Signature		Date Considered	
--------------------	--	-----------------	--